

# (12) UK Patent Application (19) GB (11) 2 348 141 (13) A

(43) Date of A Publication 27.09.2000

(21) Application No 0007929.3

(22) Date of Filing 18.09.1997

Date Lodged 31.03.2000

(62) Divided from Application No 9719923.6 under Section 15(4) of the Patents Act 1977

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(51) INT CL<sup>7</sup>  
**A61F 5/441**

(52) UK CL (Edition R )  
**A5R RCED R313**

(56) Documents Cited  
**None**

(58) Field of Search  
UK CL (Edition R ) **A5R RCED , B1L LAA**  
INT CL<sup>7</sup> **A61F 5/441**

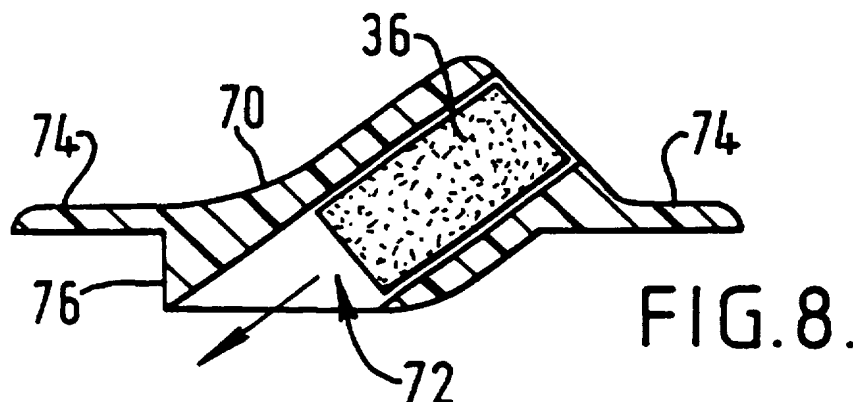
(54) Abstract Title  
**Ostomy filter**

(57) An ostomy filter comprises a filter housing (24) having a cylindrical bore (28) within which is received a cylindrical filter element (36). The filter element (36) has an axial length greater than its radius, and is slid longitudinally into the bore (28). The bore having a first aperture on one side and a second aperture on the opposite side of a continued plane. A user can select a filter element to use having appropriate flow rate characteristics to suit his or her needs.

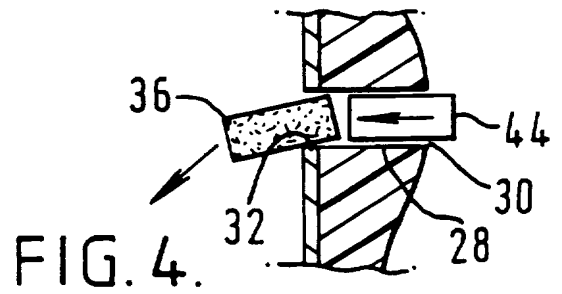
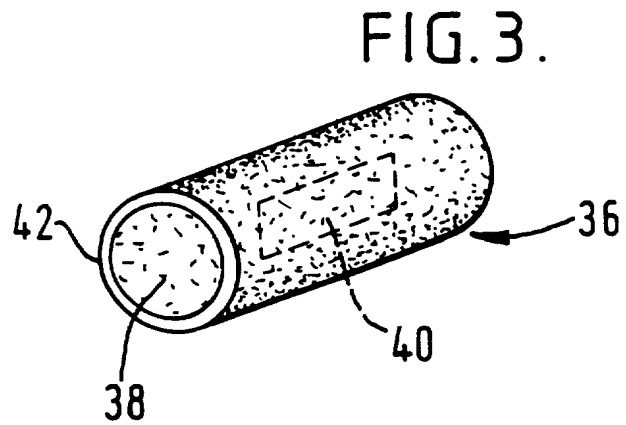
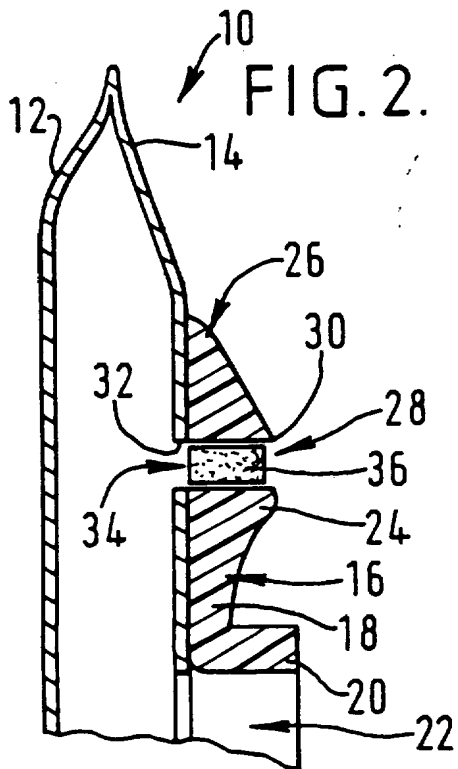
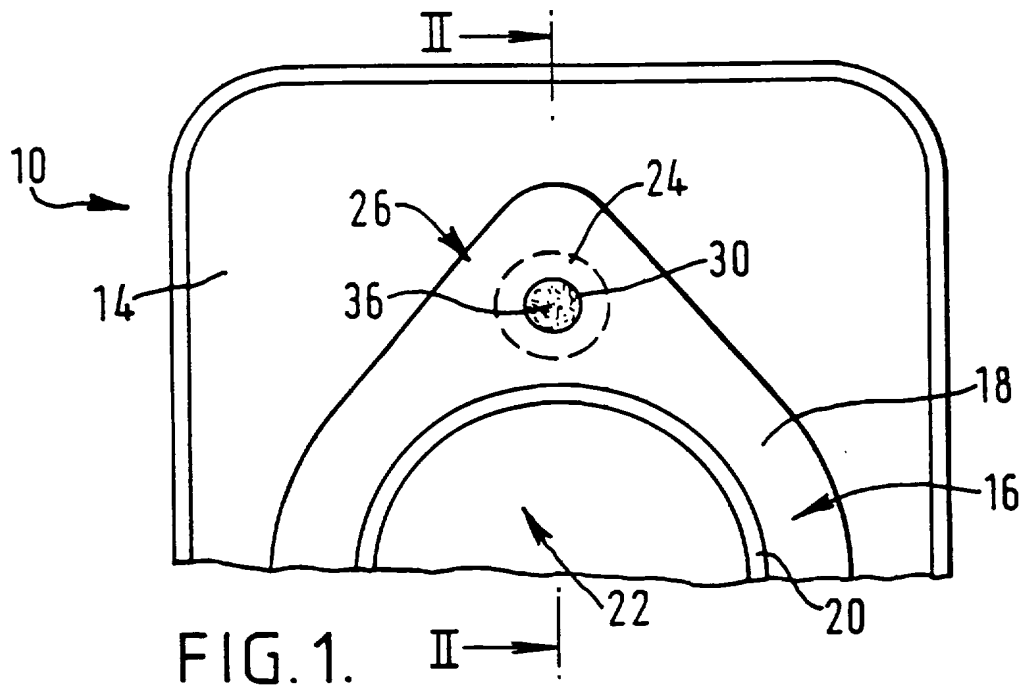
The filter may be a discrete filter mounted on the pouch wall, or it may be incorporated into a stomal aperture coupling member (16) for the pouch.

In one form, the filter element (36) can be replaced by inserting a new filter element through the outer end (30) of the bore, to displace the previous filter element and eject it through the inner end (32) of the bore into the pouch.

The filter element may contain superabsorbent for absorbing any liquid which leaks into the filter. The cylindrical filter element may be produced using conventional production facilities used in the cigarette filter industry.



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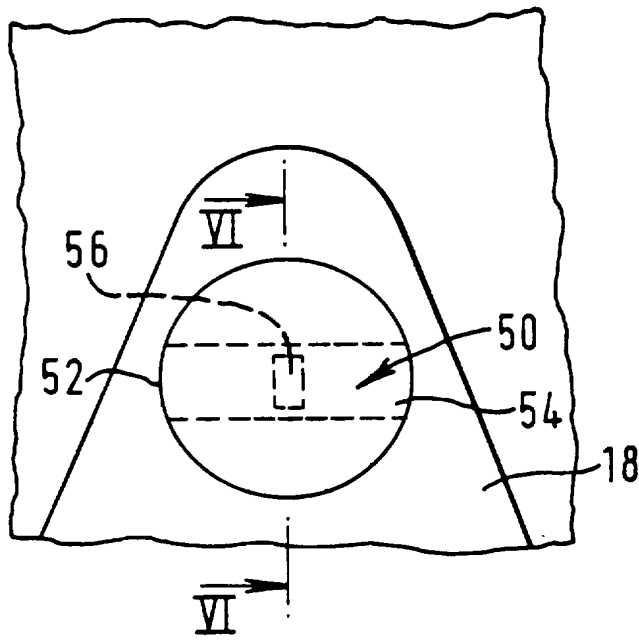


FIG. 5.

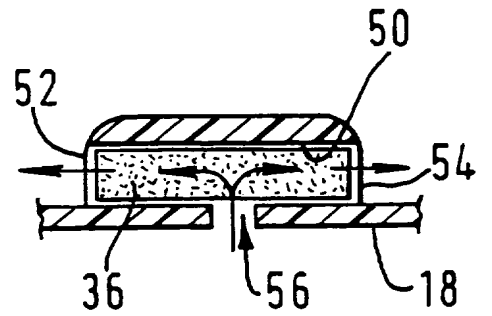


FIG. 6.

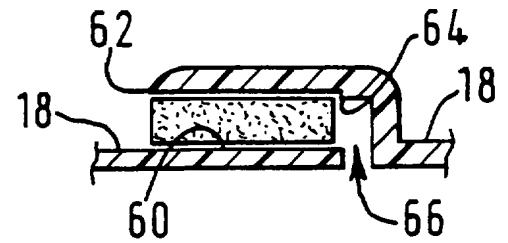


FIG. 7.

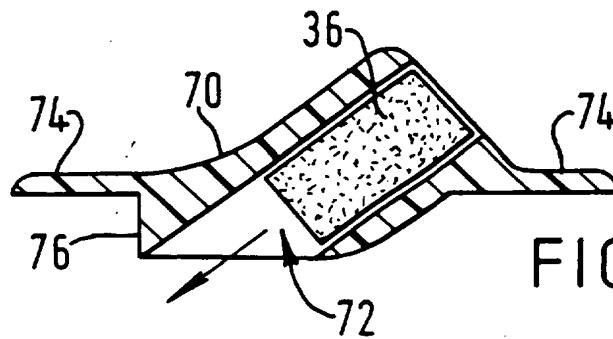


FIG. 8.

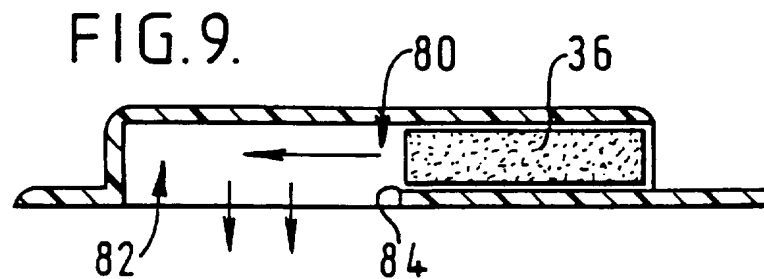


FIG. 9.

IMPROVEMENTS RELATING TO OSTOMY FILTERS

This invention relates to a deodorising filter arrangement for an ostomy pouch.

The prior art is replete with suggestions intended to permit flatus gasses to be  
5 vented from an ostomy pouch. Many such arrangements include means for deodorising these gases by the use of filters of various kinds.

For example, reference is made to the arrangements proposed in GB-A-2,225,952 and US-A-4,451,258 (both E. R. Squibb and Sons, Inc.) and GB-A-2,177,926 (Craig Medical Products Limited).

10 Such designs can provide advantages to the ostomate, for example, in terms of flow rate adjustability and filter replacement. Nevertheless, there remains a need for further compact, simple and effective filter arrangements which can be manufactured economically.

In contrast to many conventional filter elements in which a flat filter is received  
15 within a flat filter housing, one aspect of the present invention is to employ a filter housing having a bore therein, and an elongate deodorising filter element received or receivable longitudinally within the bore. The bore preferably has a longitudinal dimension greater than its, or a, lateral dimension. Preferably, in use, the gas flow through the deodorising filter element is generally in an axial direction.

20 For the avoidance of doubt, the term elongate is used herein broadly to mean that the length is greater than the, or a, lateral dimension.

During the development work leading to this aspect of the invention, it was appreciated that compact filters are already mass produced in the cigarette filter industry. Although conventional cigarette filters themselves might not be fully effective  
25 in deodorising the unpleasant odours of flatus gasses, for example, sulphur dioxide to which the human nose is extremely sensitive, the production facilities may nevertheless be suitable for the production of ostomy deodorising filters. In contrast to the prior art, the invention enables advantage to be taken for the first time of the existing production facilities used in the cigarette filter industry to mass produce elongate,  
30 compact ostomy filters very economically. To the best of the inventor's knowledge

and belief, such a filter type or construction has not been contemplated for ostomy use hitherto.

Preferably, the bore and the filter element are generally cylindrical, although this is not essential in all embodiments.

5        Preferably, the bore is generally straight. The ends of the bore may be generally transverse to the axis of the bore, or one or both ends may be inclined relative to the axis. In the former case, the bore is preferably of about the same length as the filter element, whereas in the latter case, the bore is preferably longer than the filter element (to ensure that the filter element is contained within the bore along its  
10    entire length.

Preferably, the filter element is a snug fit within the bore, and is retained in position by frictional engagement between the filter and the inner surface of the bore. One or more projections may be provided on the inner surface of the bore to grip the filter element. Alternatively, or additionally, one or more end members, for example,  
15    end covers, may be employed to contain the filter within the bore.

In one preferred form, the filter element can be positioned within the bore manually by being slid into the bore through one end. Preferably, this can be performed by the ostomate while wearing the pouch, or prior to wearing the pouch.

In a particularly preferred form, an existing filter element positioned within the  
20    bore is displaceable, or ejectable, through one end of the bore by insertion of a new filter element through the opposite end. This can allow simple filter replacement without a person having to open, and then re-secure, the filter housing to access the filter element as in many prior art designs (which in some cases may require considerable dexterity).

25        More preferably, the bore is arranged with one end opening into the pouch, so that the ejected filter element can drop into the pouch. This is particularly advantageous, because it can enable filter replacement without the ostomate having to handle and dispose of the old filter. It will be appreciated that after some time in use, a filter may normally accumulate faecal matter, or slurry, on its surface, particularly if  
30    the pouch is almost full, or if the faecal matter has leaked into the filter compartment

for other reasons. Handling such contaminated filters presents a hygiene risk. Moreover, it may not always be convenient to dispose of the old filter.

Another preferred feature is that a range of different filter elements be provided to enable an ostomate to select a filter with an optimum flow rate characteristic. The flow rate characteristic may be controlled by varying, for example, the filter density, pore density, or the tortuosity through the filter. The pouch may be supplied with a packet of such different filter elements, or the ostomate may be able to purchase a packet of different, or the same, filter elements separately. The ostomate can then insert the desired filter element into the housing prior to wearing the pouch. The filter elements may, for example, be coloured differently to indicate different flow rates.

In one preferred form, the filter housing is incorporated within a coupling member of an ostomy coupling. The filter is preferably incorporated in the bag-side coupling member, but could also be incorporated within the bodyside coupling member if desired.

In a further aspect, the invention provides a deodorising ostomy filter, comprising:

- a filter housing having a bore therein, the bore having a longitudinal dimension greater than a lateral dimension; and

- an elongate filter element received or receivable longitudinally within the bore.

Preferably, the gas flow path within the bore is in one or more generally axial directions.

Preferably, the bore and the filter element are generally cylindrical.

Preferably, the filter element is insertable into one end of the bore. More preferably, the filter element is ejectable through one end of the bore by insertion of a replacement filter element through the opposite end.

In a further closely related aspect, the invention provides an ostomy pouch including a deodorising filter, the deodorising filter comprising:

- a filter housing having a bore therethrough, the bore including an inner end communicating with an interior space of the pouch, and an opposite outer end;

an elongate filter element receivable longitudinally within the bore to deodorise gas escaping through the bore, the filter element being ejectable through the inner end of the bore into the pouch by insertion of a displacing object through the outer end of the bore.

5 Preferably, the object is a replacement filter element.

In a yet further related aspect, the invention provides an ostomy deodorising filter element, the element being generally cylindrical and having an axial length greater than its radial dimension, and preferably greater than its diameter. Preferably, the filter element is relatively rigid. The filter element may be encased in a sleeve to  
10 assist retention of the element's shape. The sleeve may be rigid or semi-rigid. The sleeve may be of a water-soluble material, for example, polyvinyl alcohol.

Preferably, the filter element contains superabsorbent material for absorbing any liquid which leaks or soaks into the filter element. This is particularly advantageous for filter or pouch configurations in which no protective barrier is provided to obstruct  
15 the passage of liquid into the filter.

In a yet further closely related aspect, the invention provides a method of replacing a filter element in a pouch having a filter housing in a bore of which is received an elongate filter element, the method comprising:

ejecting the existing filter through an inner end of the bore by insertion of an  
20 object through an opposite outer end of the bore to push the existing filter through the inner end and into the pouch; and

inserting a replacement filter into the bore through the outer end.

The above method steps may be performed separately, but preferably are carried out simultaneously as a single method step of inserting a new filter element into  
25 the bore, which acts as an object to push the existing filter from the bore and into the pouch.

In a yet further related aspect, the invention provides a method of replacing a filter element in a pouch having a filter housing in a bore of which is received an elongate filter element, the method comprising:

inserting longitudinally into a first end of the bore a replacement filter element;  
and

advancing the replacement filter element into the bore to displace the existing filter element and eject it through an opposite second end of the bore.

5 In a yet further aspect, the invention provides a method of forming deodorising filter elements for ostomy pouches, the method comprising forming an elongate rod of filter material, and cutting or slicing the rod into discrete elements.

The elements may have a transverse dimension which is less than the, or a longitudinal dimension, as described above. Alternatively, the elements may be in the  
10 form of slices having a transverse dimension greater than their axial thickness. Such elements could then be used as filter "discs" or layers in a conventional filter envelope of an ostomy pouch.

Preferably, the filter elements are generally cylindrical.

In a yet further aspect, the invention provides an ostomy pouch comprising a  
15 filter as aforesaid in any preceding aspect. The filter may either be received within a plastics housing, or it may be received within an envelope or compartment formed by one or more sheets of plastics film, or it may be attached directly to a wall of the pouch.

Embodiments of the invention are now described by way of example only, with reference to accompanying drawings, in which:

20 Fig. 1 is a rear view of a first embodiment used on an ostomy pouch;

Fig. 2 is a schematic sectional view along the line II-II of Fig. 1;

Fig. 3 is a schematic perspective view of a filter element in isolation;

Fig. 4 is a schematic sectional view similar to Fig. 2, but showing filter  
replacement;

25 Fig. 5 is a rear partial view of a second embodiment;

Fig. 6 is a schematic section view along the line VI-VI of Fig. 4;

Fig. 7 is a schematic sectional view through a third embodiment of filter;

Fig. 8 is a schematic sectional view through a fourth embodiment of filter; and

Fig. 9 is a schematic sectional view through a fifth embodiment of filter.



Referring to Figs. 1 and 2, an ostomy pouch 10 comprises a front wall 12 and a rear wall 14 of plastics film welded together around their periphery. A plastics bag-side coupling member 16 is welded to the rear wall 14 of the pouch as one half of a mechanical coupling for securing the pouch to a conventional body-side coupling member (not shown) attachable to the peristomal area of the ostomate by means of a conventional adhesive pad (not shown).

In the present invention, the bag-side coupling member 16 consists of a generally flat flange 18 from which projects a generally cylindrical wall 20 surrounding the stomal aperture 22 of the pouch 10. Although not illustrated in detail, the cylindrical wall 20 may be formed with, or support, a locking or latching element for engaging the body-side coupling member. Such elements are well known in the art, the reader being referred in particular to the snap-together coupling described in GB 1571657, and to the split-locking ring couplings described in EP 0737456 and EP 0737458.

The design of the pouch as thus far described is largely conventional to those skilled in the art.

A filter housing 24 is integrally moulded in an enlarged uppermost portion 26 of the flange 18 (i.e. uppermost when the pouch is viewed in its normal orientation). The filter housing 24 consists of a raised profile through which extends a generally cylindrical bore 28. The bore has an outer end, or mouth, 30 open to the external atmosphere, and an inner end 32 which is open to the interior of the pouch through a vent aperture 34 in the rear wall 14 of the pouch. The axial length of the bore is greater than the bore radius (and, in this embodiment, greater than the bore diameter).

An elongate, generally cylindrical filter element 36 is received longitudinally within the bore 28. The filter element 36 is dimensioned to be a fairly snug fit within the bore 28 and, in use, is held in position by friction. If desired, one or more projecting ribs (not shown) may be provided on the inside face of the bore 28 to increase the grip on the filter element 36.

Referring to Fig. 3, the filter element 36 consists of a cylindrical pack or wad 38 of suitable filter material such as activated carbon, or a material containing or

carrying activated carbon. The wad may be at least slightly compressible to enable it to be received as a tight fit within the bore 28. In this embodiment, there is no gas-permeable, liquid-impermeable wall in the pouch to prevent liquid from coming into contact with the filter. Accordingly, it is preferred that the filter contains  
5 superabsorbent (liquid swellable) material to absorb any liquid which leaks into the filter element 36. This can substantially prevent, or at least delay, the passage of liquid soaking through the filter material, and thereby increase the effective life of the filter.

A suitable superabsorbent material is a crosslinked hydrophilic polymer, for example, sodium polyacrylate. The superabsorbent may either be distributed  
10 throughout the filter material, or it may be a discrete mass (depicted in phantom by numeral 40) received, for example, within a recess or pocket of the wad 38. In this embodiment, the wad 38 is surrounded by a cylindrical sleeve 42, for example, of paper, to contain and protect the wad, and to provide the element with a degree of rigidity.

Depending on the amount, and the configuration, of the superabsorbent in the  
15 filter element 36, the swelling of the superabsorbent upon absorption of liquid could be used to block the filter once the superabsorbent has reached absorption saturation; the resulting ballooning of the pouch caused by trapped gas unable to vent through the filter, would then indicate to the ostomate that the filter needs replacing, as described  
20 further below.

The filter element 36 is typically between about 1 cm and about 3cm in length, with a diameter of between about 0.5cm and about 1cm. The bore 28 has dimensions corresponding roughly to those of the filter, so that the raised portion of the housing does not need to project from the face of the pouch unnecessarily, and to provide the  
25 friction retention of the filter within the bore. Although not illustrated in the drawings, the flange 16 may have a rear projection which projects into the interior of the pouch. This would enable the "height" of the exterior projection to be reduced, and could also provide a separation function to prevent the walls of the pouch from sticking together.

It has been appreciated during the work leading to the present invention that  
30 such an elongate, cylindrical, activated-carbon-containing and/or superabsorbent-

containing filter can be produced using the conventional production facilities in the cigarette industry. This can enable suitable compact filters to be mass produced very economically. Generally, the filters would be produced as a continuous, or elongate rod, which is then cut or sliced into discrete filter elements.

5 Referring to Fig. 4, when it is desired to replace the filter element 36, a fresh filter element 44 is simply inserted through the mouth 30 of the bore 28. As the new filter element 44 is advanced into the bore 28, it contacts the existing filter element 26 and pushes it rearwards to be discharged or ejected through the inner end 32 of the bore. The discharged filter element 36 falls into the pouch, leaving the fresh filter  
10 element 44 in place in the bore 28. It will be appreciated that such filter replacement is extremely simple, and there is no need to dispose separately of the previous filter element 36, since this is automatically added to the pouch contents.

If preferred, the previous filter element 36 can be ejected before the new filter element 44 is inserted. For example, the tip of a pencil can be inserted into the bore to  
15 force the existing filter element 36 into the pouch.

In the above embodiment, the length of the filter element 36 has to be accommodated within the profile of the filter housing, the bore 28 being generally perpendicular to the plane of the flange 18. As explained above, the projecting "height" on the exterior of the pouch can be reduced by employing a rear extension of  
20 the housing, and "sinking" the bore 28 relative to the flange. Additionally, or alternatively, the bore 28 may be inclined diagonally relative to the flange, to accommodate the length of the bore 28 in a smaller "height" or housing thickness. Such modifications are illustrated in the fourth embodiment below.

In a second embodiment, referring to Figs. 5 and 6, the filter receiving bore  
25 does not extend through the flange and into the pouch. Instead, the bore 50 extends generally parallel to the plane of the flange, adjacent to its outer surface. The opposite ends 52 and 54 of the bore 50 are both open to the exterior atmosphere, and gas enters the filter from the pouch through a central aperture 56 in the wall of the bore 50 and the flange 18. The gas flow divides into two opposite axial paths to the opposite ends  
30 52 and 54 of the bore.

In this embodiment, the filter element 36 is similar to that described above (but it is a requirement that gas can enter the filter midway along its length). The filter element 36 is replaceable by inserting a replacement filter element (not shown) into one end of the bore, to force the previous filter element to be ejected through the opposite end. However, with this embodiment, the previous filter element 36 does not drop into the pouch, and will need to be disposed of separately. Nevertheless, such an arrangement does permit a gas-permeable, substantially liquid-impermeable barrier to be used (e.g. as illustrated in phantom by numeral 58) to prevent, or at least reduce, liquid contact with the filter.

Fig. 7 illustrates a further embodiment which is similar to the second embodiment described above, but the bore 60 has only one end 62 open to the exterior atmosphere. The inner end 64 is closed, except for a passage 66 leading through the flange 18 and the pouch wall. In use, gas from the pouch vents through the passage 66, to the inner end 64 of the bore 60, and axially through the filter element 36 to the outer end 62 of the bore.

Although it is possible to extract the filter element 36 from the bore 60, and to insert a replacement filter element, this arrangement is more suited to filters which are intended not to be replaceable in use.

Although the above embodiments illustrate filter arrangements which are incorporated into a coupling member of the pouch, it will be appreciated that the same arrangements could be employed in discrete filters fitted to either the front or rear wall of a pouch. For example, Fig. 8 illustrates such a discrete filter embodiment. This is similar to the first embodiment described above, the filter housing 70 having a through bore 72 similar to the bore 28 to allow filter elements to be discharged into the pouch.

In this embodiment, the housing includes a peripheral flange 74 to allow the housing 70 to be welded or adhered to a pouch wall. The housing also includes a rear extension 76 of the type discussed previously to reduce the projecting profile of the housing. The bore 72 is inclined diagonally relative to the flange 74, to further reduce the projecting profile of the housing.

Fig. 9 illustrates a fifth embodiment which is similar to the fourth embodiment described above. However, in the fifth embodiment the bore 80 is generally parallel to the flange. A large open region 82 is provided at the inner end 84 of the bore 80 to allow a filter element discharged from the bore to fall sideways into the pouch. The length of the open region 82 is slightly greater than the length of the filter element, so that the filter element should be free to fall into the pouch. The open region 82 may be wider than the bore 80 so that there should be no tendency for the discharged filter element to stick to the wall of the housing.

It will be appreciated that the above designs of filter for a coupling member may also be used for a discrete filter, and the designs for a discrete filter may also be incorporated into a coupling member.

With the above embodiments, it is preferred that a range of filter elements having different flow rate characteristics be provided, to enable the ostomate to choose the best filter to suit his or her personal needs. It will be appreciated that different people produce different amounts of flatus, and this also depends on the type of food eaten. The filter should be able to vent flatus at such a rate to avoid the pouch ballooning under normal circumstances, but should also provide sufficient resistance to prevent collapsing of the pouch (which might cause the front and rear walls to stick together).

For example, each pouch could be accompanied by a packet of different filter elements to enable the ostomate to select the most appropriate filter. Alternatively, the ostomate may be able to purchase packets of filters separately. Particularly with the first, second and fourth embodiments described above, the filters may initially be supplied with a "standard" filter element, the ostomate having the opportunity to customise the filter by inserting a different filter element to suit his or her needs.

The filter could also be supplied initially with a solid plug element blocking the bore 28. The ostomate need then only fit a filter element if desired.

It will also be appreciated that the first, second and fourth embodiments described above provide a very simple way of replacing the filter element. The disposal into the pouch of the used filter element, provided by the first and fourth

embodiments, is very hygienic and avoids the need to handle and dispose separately of the old filter element.

It will also be appreciated that the invention, particularly as described in the preferred embodiments, can enable the use of novel type of filter which can be  
5 produced very economically by existing proven production facilities used normally in the cigarette filter industry.

Although features and aspects of the invention believed to be of particular importance have been set out in the forgoing description and in the appended claims, the Applicant claims protection for any novel idea, feature or combination of features  
10 described herein or illustrated in the accompanying drawings irrespective of whether emphasis has been placed thereon.

**CLAIMS**

1. A deodorising filter for an ostomy pouch, comprising:  
a filter housing comprising a peripheral mounting flange for attachment to an  
5 ostomy pouch wall, the flange having a continuous plane, and the filter housing  
further comprising a bore inclined relative to said plane of the flange, the bore having  
a first aperture on one side and a second aperture on the opposite side of said plane;  
and  
a replaceable elongate filter element received or receivable longitudinally  
10 within the bore, the gas flow through the filter being generally in an axial direction.
2. A filter according to any preceding claim, wherein the bore has a longitudinal  
dimension greater than a lateral dimension.
- 15 3. A filter according to claim 1 or 2, wherein the bore and the filter element are  
generally cylindrical.
4. A filter according to claim 1, 2 or 3, wherein the filter element is a sufficiently  
tight fit within the bore to be retained in position in the bore in normal use.  
20
5. A filter according to any preceding claim, wherein the filter when positioned  
within the bore is ejectable through one end of the bore by insertion of a pusher object  
through the opposite of the bore.
- 25 6. A filter according to any preceding claim, wherein the filter element is  
insertable into the housing by sliding the filter through an open end of the bore.
7. A filter according to any preceding claim, wherein the filter comprises  
superabsorbent material.  
30
8. An ostomy pouch comprising a filter as defined in any of claims 1 to 7.

9. A method of replacing a filter element in a pouch as defined in claim 8, the method comprising:

- 5 ejecting the existing filter through an inner end of the bore by insertion of an object through an opposite end of the bore to push the existing filter through the inner end and into the pouch; and  
inserting a replacement filter into the bore through the outer end.

10. A method of replacing a filter element in a pouch as defined in claim 8, the method comprising:

- 10 inserting longitudinally into a first end of the bore a replacement filter element; and  
advancing the replacement filter element into the bore to displace the existing filter element and eject it through an opposite second end of the bore.

15 11. A method according to claim 10, wherein the existing filter element is ejected into the pouch.

12. A deodorising filter for an ostomy pouch, comprising:

- 20 a filter housing having a bore therein; and  
an elongate filter element received or receivable longitudinally within the bore, the gas flow path through the filter element being generally in an axial direction.

13. A deodorising filter for an ostomy pouch, comprising:

- 25 a filter housing having a bore therein, the bore having a longitudinal dimension greater than a lateral dimension; and  
an elongate filter element received or receivable longitudinally within the bore.

14. An ostomy pouch comprising a deodorising filter, the filter comprising:

- 30 a filter housing having a bore therethrough, the bore including an inner end communicating with an interior space of the pouch, and an opposite outer end;



an elongate filter element receivable longitudinally within the bore to deodorise gas escaping through the bore, the filter element being ejectable through the inner end of the bore into the pouch by insertion of a displacing object through the outer end of the bore.

5

15. A filter element for use in an ostomy filter, the filter element comprising material for masking or absorbing ostomy odours, and the filter element being generally cylindrical with an axial length greater than its radius.

10 16. A method of replacing a filter element in a pouch having a filter housing in a bore of which is received an elongate filter element, the method comprising:

ejecting the existing filter through an inner end of the bore by insertion of an object through an opposite outer end of the bore to push the existing filter through the inner end and into the pouch; and

15 inserting a replacement filter into the bore through the outer end.

17. A method of replacing a filter element in a pouch having a filter housing in a bore of which is received an elongate filter element, the method comprising:

20 inserting longitudinally into a first end of the bore a replacement filter element; and

advancing the replacement filter element into the bore to displace the existing filter element and eject it through an opposite second end of the bore.

25 18. A method of forming deodorising filter elements for ostomy pouches, the method comprising forming an elongate rod of filter material, and cutting or slicing the rod into discrete elements.



INVESTOR IN PEOPLE

Application No: GB 0007929.3  
Claims searched: 1-11

Examiner: J. P. Bellia  
Date of search: 24 July 2000

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): A5R (RCED) B1L (LAA)

Int Cl (Ed.7): A61F 5/441

Other:

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	NONE	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.